6-12-2013

Analyzing Return on Investment in Public Health: Implications and Future Directions

Glen P. Mays
University of Kentucky, glen.mays@cuanschutz.edu

PUBLIC HEALTH
Practice-Based Research Networks
National Coordinating Center

Analyzing Return on Investment in Public Health: Implications and Future Directions

Glen Mays, PhD, MPH
University of Kentucky

UK
UNIVERSITY OF KENTUCKY
Center for Public Health Systems and Services Research

PUBLIC HEALTH
Practice-Based Research Networks
National Coordinating Center

Realizing Greater Value from ROI Analysis

- Gaining a deeper understanding of costs: accuracy & variability
- Compared to what: going beyond pre-post
- Attribution issues: using stronger designs
- Improving the ROI: opportunities for efficiency

Why a stronger focus on costs?

"Poor costing systems have disastrous consequences. It is a well-known management axiom that what is not measured cannot be **managed or improved**. Since providers misunderstand their costs, they are unable to **link cost to process improvements or outcomes**, preventing them from making good decisions….Poor cost measurement [leads] to huge **cross-subsidies across services**…Finally, poor measurement of costs and outcomes also means that effective and efficient providers **go unrewarded**."

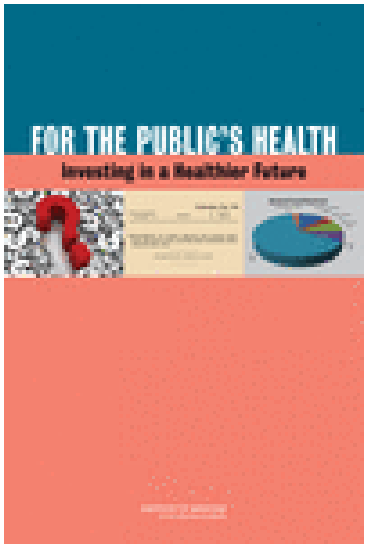
– R.S. Kaplan and M.E. Porter, The big idea: how to solve the cost crisis in health care. *Harvard Business Review*; 2011.

Toward a deeper understanding of costs & returns

PUBLIC HEALTH Practice-Based Research Networks
National Coordinating Center

2012 Institute of Medicine Recommendations

- Identify the components and **costs of a minimum package** of public health services
  - Foundational capabilities
  - Basic programs
- Implement a **national chart of accounts** for tracking spending levels and flow of funds
- Expand **research on costs and effects** of public health delivery



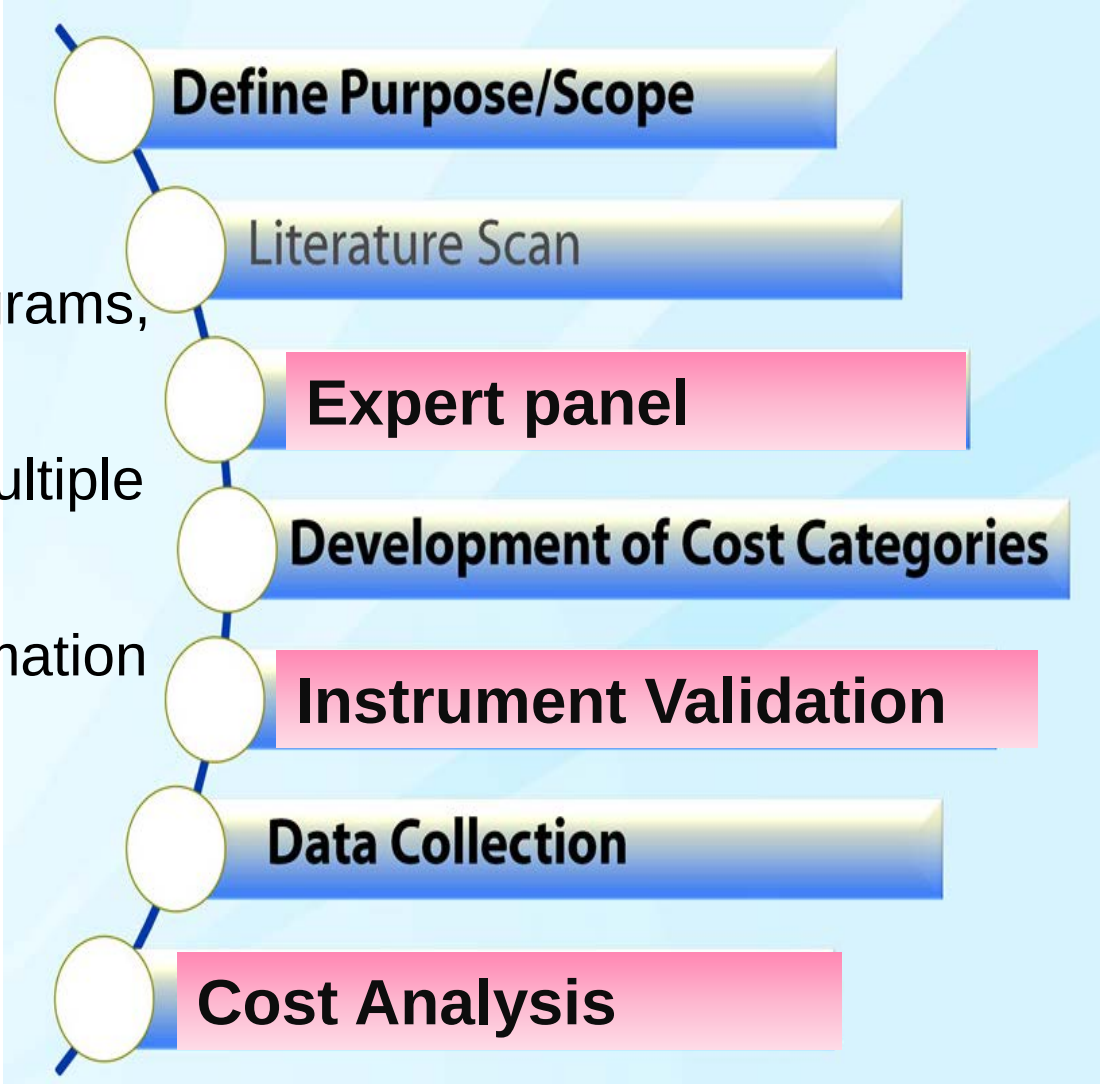
Institute of Medicine. For the Public's Health: Investing in a Healthier Future. Washington, DC: National Academies Press; 2012.

Key questions for cost analysis

- What level of resources are required to deliver a given bundle of public health activities for a given population?
- How do delivery costs vary across communities and population groups?
- What delivery system characteristics influence costs?

Robert Wood Johnson Foundation's Public Health Delivery and Cost Studies (DACS)

- Conducted by PBRNs
- Focus on high-value programs, services, & infrastructure
- Compare costs across multiple public health settings
- Use a standard cost estimation methodology



Costing methods used in DACS

- Direct observation methods
- Time studies and time-and-motion methods
- Activity logs
- Analysis of administrative records
- Staff & manager surveys
- Group process methods with vignettes

SASCAP™
Substance Abuse Services Cost Analysis Program

SPECIAL REPORT ARCHIVE

Results and Policy Implications of the Resource-Based Relative-Value Study

William C. Hsiao, Ph.D., Peter Braun, M.D., Daniel Dunn, Ph.D., Edmund R. Becker, Ph.D., Margaret DeNicola, M.P.H., and Thomas R. Ketcham, M.P.H.

N Engl J Med 1988; 319:881-888 | September 29, 1988 | DOI: 10.1056/NEJM198809293191330

Costing methods used in DACS

Don’t overlook...

- Resources that are hard to measure or value
- Resources used in small amounts
- Resources shared by multiple programs/activities
- Resources procured without money
  - Volunteer time
  - Parent/caregiver time
  - Intervention recipient time
  - In-kind contributions/donated materials
  - Existing resources

Analytic methods used in DACS

- Attributing cost impact
  - cost function estimation
- Estimating cost heterogeneity & efficiency
  - Stochastic frontier analysis
  - Data envelopment analysis

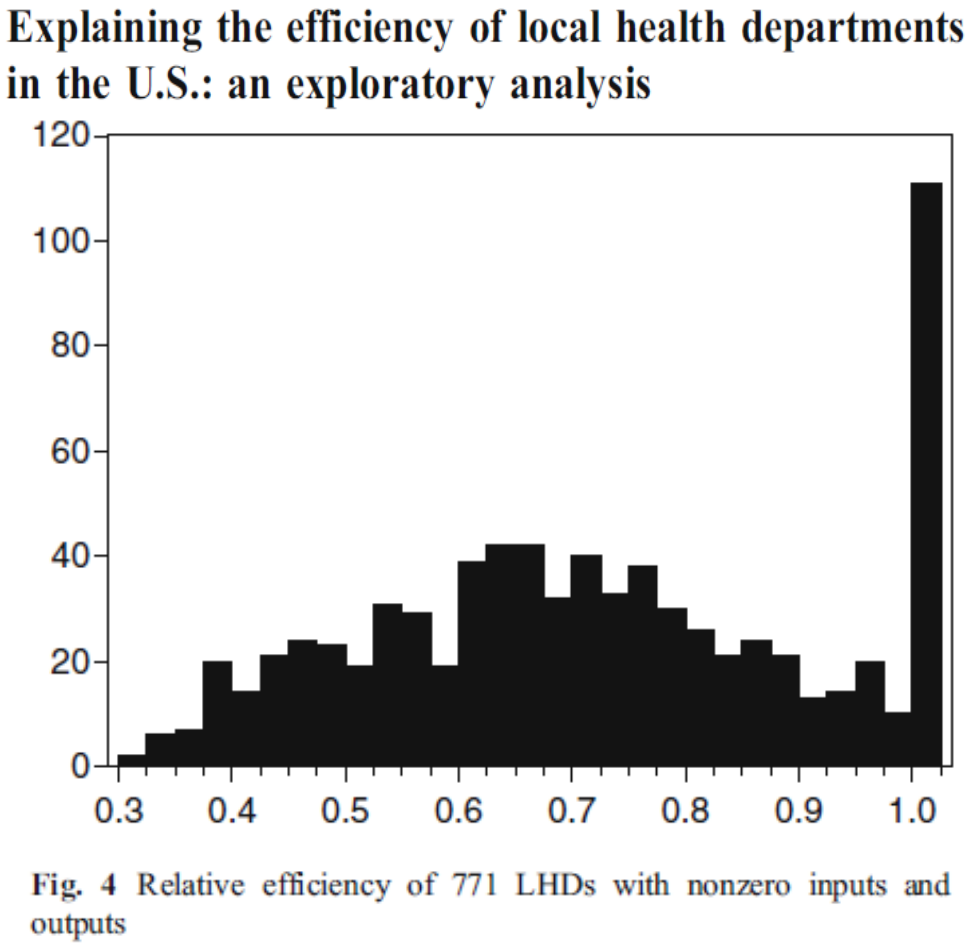
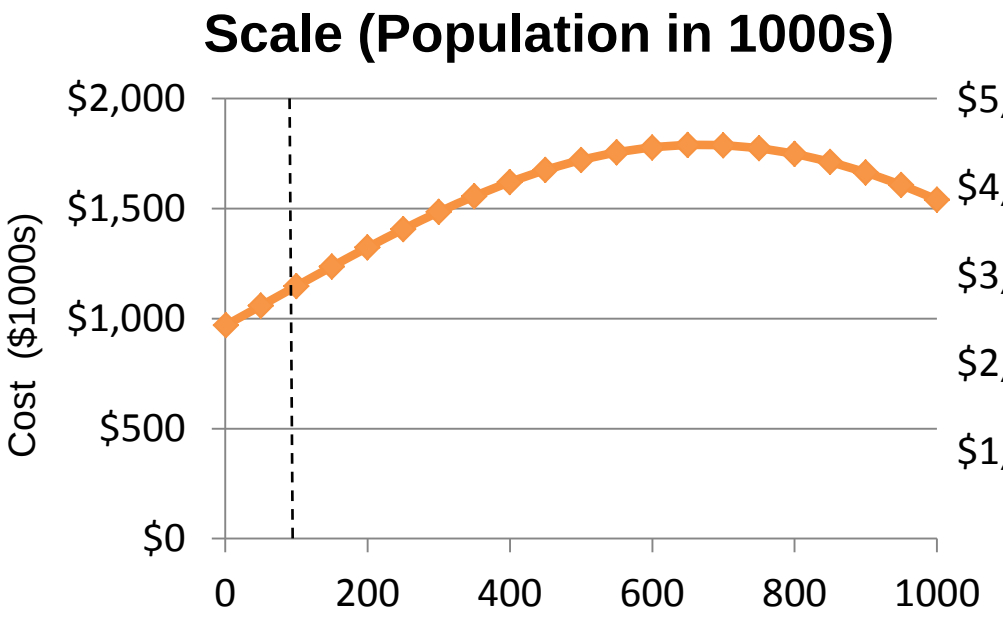
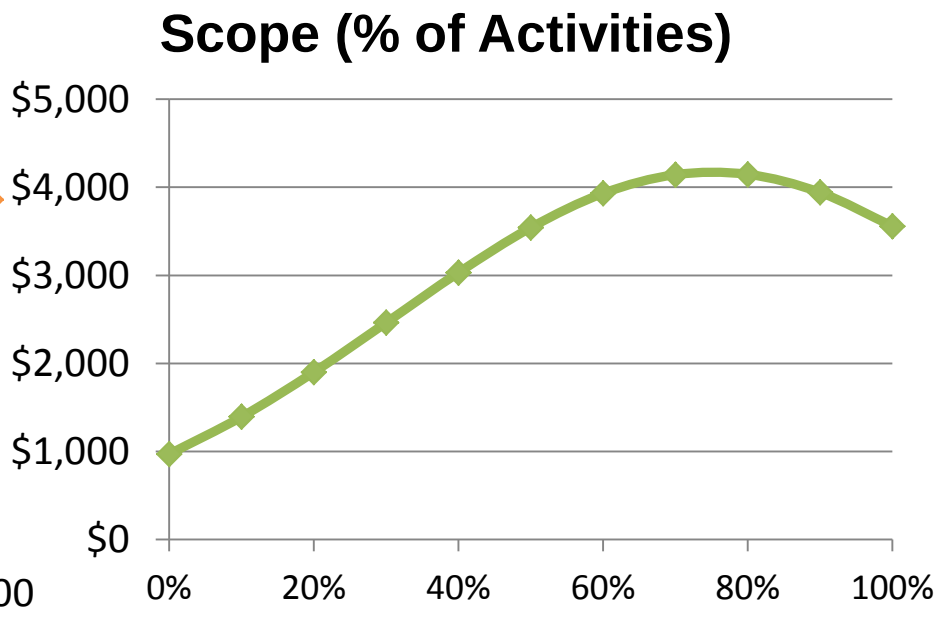


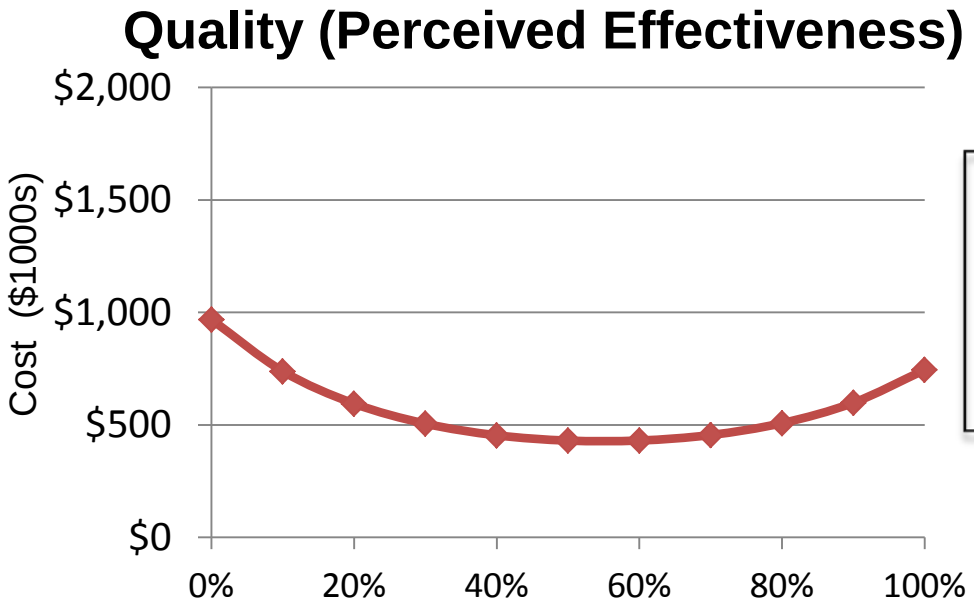
Fig. 4 Relative efficiency of 771 LHDs with nonzero inputs and outputs

Mukherjee, Santerre and Zhang 2009

Improving ROI: Economies of Scale & Scope







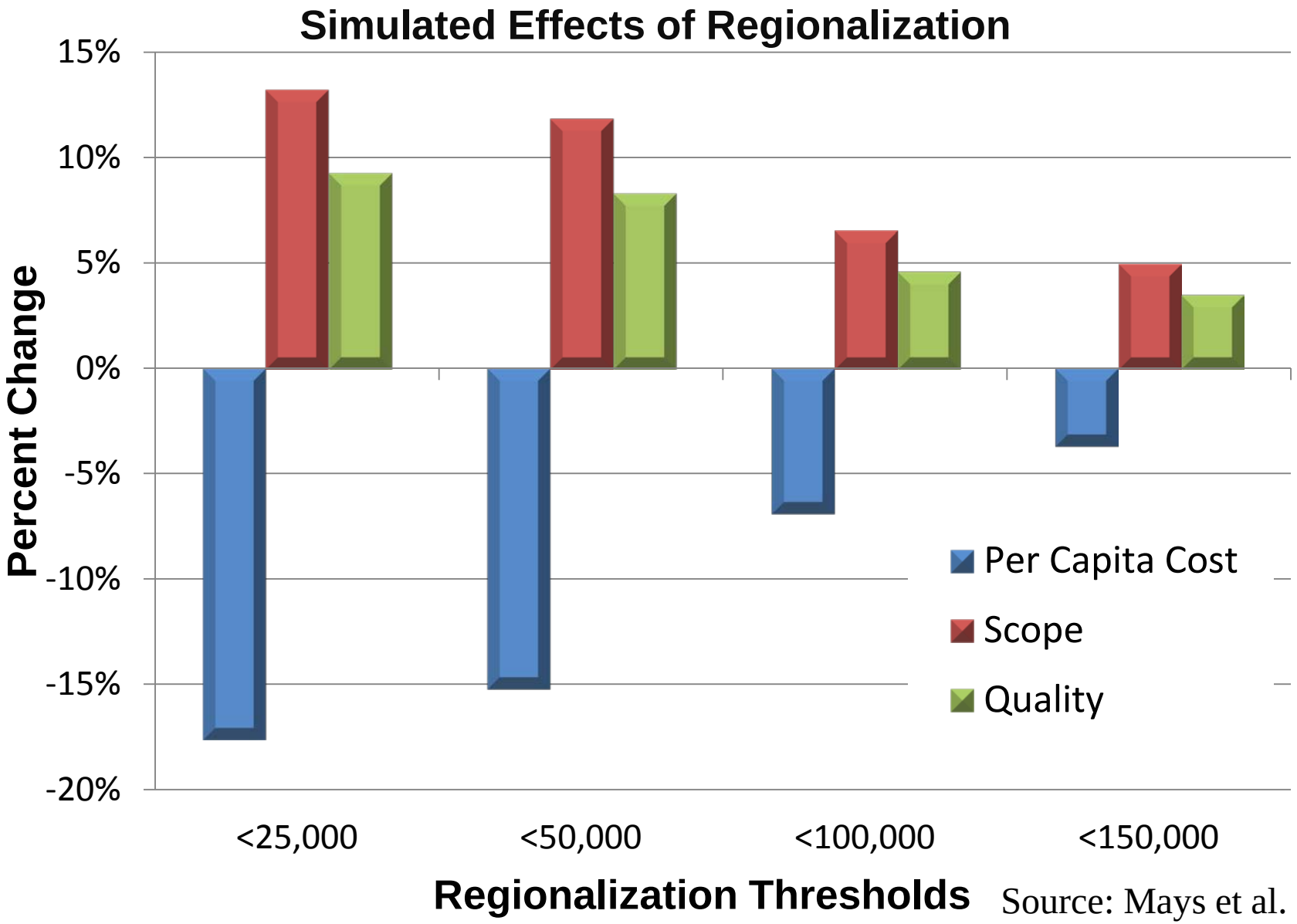
National Longitudinal Survey of Public Health Systems

PUBLIC HEALTH Practice-Based Research Networks
National Coordinating Center

Source: Mays et al. 2012

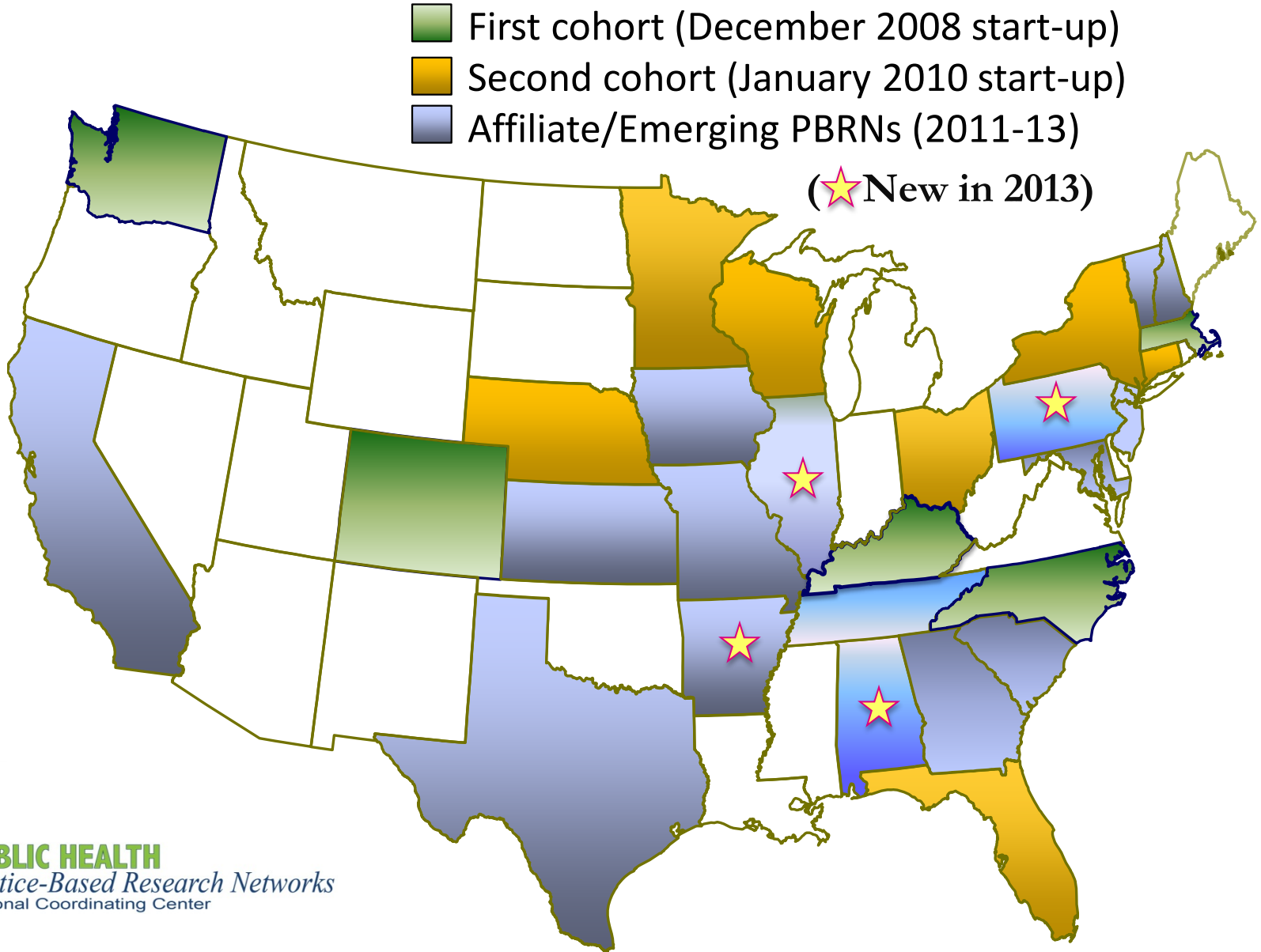
Improving ROI: Using simulation for scenario analysis

PUBLIC HEALTH Practice-Based Research Networks
National Coordinating Center



Source: Mays et al. 2012

Finding ROI Partners: Public Health PBRNs



PUBLIC HEALTH
Practice-Based Research Networks
National Coordinating Center

Informing practice and policy decisions

- Align spending with preventable disease burden
- Identify and address inequities in resources
- Improve productivity and efficiency
- Demonstrate value: linking spending to outcomes
- Strengthen fiscal policy: financing mechanisms

For More Information

PUBLIC HEALTH
Practice-Based Research Networks
National Coordinating Center

National Coordinating Center for PHSSR

Supported by The Robert Wood Johnson Foundation

Email: publichealthPBRN@uky.edu
Web: www.publichealthsystems.org
Journal: www.FrontiersinPHSSR.org
Archive: www.works.bepress.com/glen_mays

Phone: 859-218-0013; Fax: 859-257-3748

UK UNIVERSITY OF KENTUCKY

University of Kentucky College of Public Health
Lexington, KY